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The curriculum is the heart of the secondary school and its continuous revision is at once dependent upon the evolution of theories and the emerging needs of society. Curriculum theory may be regarded as a body of beliefs, assumptions, and knowledge derived through a process of critical analysis and substantiated by study and observation. Four main approaches to curriculum design have evolved. The subject centered approach emphasizes subject matter and the memorization of facts and might be called the traditional approach. The interest curriculum approach places emphasis on the learner, often to the neglect of content. The structure-of-knowledge approach focuses on understanding, development of perceptual skills, and symbolic operations which lead to an extension of learning and knowledge. Finally, the humanistic approach provides for motivation by considering the needs and interests of youth while retaining emphasis on subject matter. Curriculums of comprehensive high schools are designed for the areas of required courses, elective courses, and cocurricular activities. Rapid changes in society, however, generate many problems for secondary educators who attempt to keep curriculum vital. (TT)

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SECONDARY SCHOOL CURRICULUM

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Preface

The *Secondary School Curriculum* was written for students of education, especially for those in the graduate school. However, it can also be used as a text in undergraduate courses on the junior or senior level in Colleges of Education and Teachers Colleges which offer a course in curriculum to meet certification requirements. On the graduate level, a number of states prescribe a course in curriculum to meet requirements for an administrator's or supervisor's certificate. The text is designed for all of these purposes.

In addition, it is valuable for in-service teachers, high school principals and curriculum directors who are engaged in curriculum planning and study of their local junior and senior high schools.

Although the point of view, the emphasis, and the majority of the content are on the curriculum, some treatment is given to philosophies, methods, and theories of learning as they relate to curriculum, for these cannot be separated from content. Often they determine content selection.

The most unique feature of this text is the development of a curriculum theory and the selection of an approach to curriculum study. The traditional approach is that of reorganization of content, maintaining the existing structure and pattern of courses of study. This results in partial improvement only and does not meet the needs of students in present-day society. The increase in knowledge is so great and is proceeding at such a rapid pace that a new approach and set of principles are needed as guides to aid curriculum planners in selecting, organizing and presenting content. A new approach is also needed if students are to increase and expand their own knowledge through independent study.

The basic theory, in brief, is that the needs of society and of individuals can be analyzed; that these needs can be expressed in terms of behavioral outcomes to be achieved; that learning activities can be selected to attain them; and that these activities can be organized into units and courses of study.

The approach is based on the structure of knowledge of each subject area. These structures act as guides in selecting content and method, and provide the basis for motivation and transfer. Stress is placed on acquiring concepts, relationships, understandings and processes so that the students will be able to use the methods of discovery, exploration and experimentation. The problems approach is the method which is stressed throughout the entire text, for the cognitive structure and the problems approach are two inseparable curriculum companions.

Although patterns of curriculums are presented and the curriculums of various types of schools are described, no attempt is made to construct a curriculum and present it as a model for any local school. Instead, guides, principles, and techniques are presented for those engaged in curriculum study so they can plan intelligently for their own local situations.

A curriculum theory, approaches and patterns are presented in the first chapters. Subsequent chapters are elaborations, explanations, applications, and methods of implementation. An analysis of each basic subject is presented as well as a description of the most promising practices in each of them. This includes the study materials, often called projects, prepared by various curriculum study groups.

In addition to curriculum innovations which are described, innovations which have been introduced to provide for greater efficiency in learning and in a better utilization of teachers' time are also described. The major ones are team teaching, teacher aides, flexible scheduling, newer instructional media, honors programs, advanced placement and ungraded high schools.

The innovations in curriculum, scheduling and school organization are the results of and evidence of an educational revolution which started after World War II and is still continuing. Criticisms and recommendations are still being made in order to keep the curriculum vital during the period of unrest, protests, and migrations. The migrations from rural to urban centers and the creation of suburbia have created educational problems. There is a tendency for high schools to become segregated on a social-economic basis resulting in excellent suburban and city schools where students are mostly college bound, and the creation of ghetto schools in slum areas composed of students who see no value in the uniform curriculum prescribed by the city administration.

Many parents are sending their children to private schools if they reside in an area where the school is considered sub-standard, if they do not want to send them to an integrated public school, or if they desire religion as a part of the curriculum.

Thus, many kinds of schools have been created: the wealthy urban and suburban schools, the private ones, ghetto schools, consolidated schools in small cities, and the small rural schools with limited facilities and curriculum. There is a need for a nation-wide appraisal of the students in these schools in order to have a basis for determining just how well youth are being educated in such a variety of schools and curriculums. Plans are being made to conduct a national assessment. It is known in advance that differences will be found, but in which schools? Which areas? What recommendations will be made because of the differences? Will the result be a national curriculum of basic subjects required of all students in all schools?

The authors hope that this volume will be of help to students and teachers in providing solutions to these and other curriculum problems.

R.K.B.
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The Evolving Curriculum: Theories and Approaches

The curriculum is the heart of the secondary school. The physical plant, equipment, and instructional materials are all for one purpose, that of implementing the curriculum. The major criteria for evaluating a secondary school are centered about the instructional program, indicating that it is considered the most important phase of the school. Its importance is also shown by the number of criticisms of the curriculum and suggestions for its improvement. At the same time, there are more concepts and more disagreement concerning its aims and functions than of the other features and aspects of the secondary school.

Constructing and reorganizing curriculums of secondary schools have always been a major concern of educators. The process involves many continuing problems which are complicated because there are many concepts of the curriculum which cause disagreement as to its functions, what should be included, and how the content should be organized. Therefore, experts have defined *curriculum* in different terms.

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A prevailing definition of *curriculum* is that it consists of all the learning experiences a student can have at school. This definition includes all of the courses of study, the student activities, and the learning experiences connected with the entire school environment. This definition is so comprehensive that it does not give direction in curriculum development because it does not provide a basis for determining what experiences the student should have. This definition treats existing curriculum in normative-descriptive terms with implications for status quo.

But definitions which suggest what types of activities should be provided are preferable. Defined in this manner, the curriculum consists of the learning activities and experiences which have been selected to achieve educational objectives. This would include the entire instructional program, although it would not include certain elements of the curriculum of a particular student or group of students. The curriculum for an individual student would include the learning activities planned especially for him, selected from the total resources available and such learnings as may be experienced incidentally.

The term also refers to courses of study provided for groups of students who have specific interests, and needs in common, such as the college preparatory group. Thus a carefully planned sequence of courses leading to a major, or to entry into an occupation or advanced study may be defined as curriculum.

Curriculum includes not only the courses of study designated by a general or specific title, such as science, mathematics, English as general terms, or algebra, biology, speech as specific titles, but also includes the content of each of these courses of study.

To preclude the indiscriminate development of the curriculum, standards are needed to determine what courses should be offered by a given school and also what specific learning experiences should be included in each. Criteria for content selection are derived from educational philosophy, theories of learning, concepts of education and methodological approaches related to the development of the curriculum.

Varying educational concepts have led to a variety of curriculums designed to achieve the purposes of secondary education. Diversity rather than uniformity, not only among nations but also within them, and especially in the United States, is due to varying concepts concerning the role of education in society as well as such factors as tradition, local rather than central control, cultural patterns, variations in financial support and the absence of a useable, valid curriculum theory.

This diversity of concepts has also led to many criticisms of the current curriculum and to many suggestions for its improvement. These

efforts toward improvement will continue as long as educators continue to study the curriculum and to reorganize it, bringing it into better alignment with the changes which occur in society. Also, criticisms and changes will continue to accumulate as long as there are numerous competing curriculum theories. Changes are always necessary to keep the curriculum vital in a changing world, but these will result in variations if there is local participation in curriculum construction and if individual interpretation of curriculum theory is permitted. Agreement and uniformity may be very undesirable, however, for when local participation and individual interpretation are operating freely, curriculum development will proceed more rapidly and will result in desirable and utilitarian variations within a pattern of uniformity. When competing theories, definitions, and approaches are carefully examined and evaluated the rigor of the competition will normally produce better theories and better alternatives.

INTRODUCTION TO CURRICULUM THEORY

Theory, as employed in this discussion, refers to a set of related assumptions, statements referring to embracing concepts, structure, and methodology and their interrelationships, which may be utilized as guides in curriculum development. The statements differ from but include principles of organization and action. Curriculum theory, in the form of guiding statements, may be employed as the basis for validating existing practices in curriculum reorganization and point the direction for revisions and building a curriculum for a given society, or for new nations, developing states, or emerging cultures.

Curriculum theory should not be confused with curriculum *per se*. Theories are stated in terms of generalizations congruous with existing knowledge and facts. For example, the electron theory concerning the composition of molecules has led to many applications. In the same manner, curriculum theory can be employed to construct or evaluate many developments and practices by applying the generalizations as guides or criteria for evaluation.

It is doubtful whether a set of curriculum guide-lines can be developed scientifically. Curriculums are derived from the culture and therefore contain elements of the value system, artifacts, cultural (national) myths, and attitudes of the people. Circumstances, tradition, existing practices, and cultural values determine the nature of the educational enterprise, formally and informally and influence the outcomes. Just as curriculums relate to the societies in which they operate, so also do the procedures in developing a curriculum relate to the processes found in the culture. Therefore all curriculums have

evolved according to observable principles whether they were predetermined through research or were formulated as the development progressed.

A Curriculum Theory

The following is a general curriculum theory which embodies the beliefs and practices of many students of curriculum design:

1. With regard to society:
   a. The social framework in which the curriculum operates can be analyzed. From this analysis the aims and purposes of society and individuals can be identified and stated as objectives of education.
   b. Some of these objectives can be achieved through informal educational agencies; others can be attained adequately only through formal education.
2. With regard to the learner:
   a. The individual and societal needs of each learner can be determined from a study of youth and their culture. The aspects of the culture which can and should be transmitted, and those which can and should be changed can be determined.
   b. It is possible to plan a curriculum in terms of learning activities which will achieve the predetermined objectives. Principles can be derived from cultural values which act as guides in selecting learning activities.
3. With regard to subject matter:
   a. Principles should be developed and utilized for determining the role of various content areas in attaining the objectives of education. The structure of knowledge and the mode of inquiry of each subject are basic in developing learning activities. The structure of a discipline or subject, if understood, facilitates learning and progress to advanced levels. This structure can be identified and translated into learning experiences for instruction.
4. With regard to school organization:
   a. A single comprehensive high school can provide both exposure and specialization for students with different purposes and who have various levels of ability. These individual differences can be served through a program of required and elective courses and by means of appropriate methods. Programs of instruction can be constructed which provide for the common interests and the general education requirements of all students as well as the special interests which they may have.

5. With regard to learning theory:
   a. Principles of teaching-learning procedures can be derived from learning theories which are based on such concepts as readiness, maturation, motivation, transfer, and individual differences.
   b. Principles can be derived for evaluating and validating curriculum materials and procedures in terms of the outcomes (pupil behavior) to be attained. To aid in evaluation, formalized procedures may be established which may be utilized as models for judging prevailing practices and innovations.
6. With regard to criteria of construction:
   a. There are many approaches to curriculum construction each influenced by some philosophy of education. Each philosophy suggests certain content, purposes, and methods. Thus each philosophy has value in curriculum designing. It is not necessary to select one in preference to another. Each one has value, and some curriculum experts use an elective approach.
   b. Basic to constructing a curriculum in this manner is the belief in the educability of all youth. The structure of each subject consisting of concepts, principles, information, and relationships can be learned by all youth provided the structure is presented at levels congruent with their experiences and vocabulary.
   c. Learning can be facilitated by preparing and providing an orderly sequence of experiences arranged and presented in relation to maturity, readiness and ability of each learner. Also a variety of electives is provided so that learning may be enriched by providing balance, breadth and depth in an area.

Although curriculum study may proceed on a state and national level, as will be illustrated later, nevertheless, it should be practiced on a local level. This will assure the necessary variation within a similar pattern, since no two local communities are identical.

Curriculum Theories and Doctrines

A curriculum theory may be regarded as a body of beliefs, assumptions, and knowledge derived through a process of critical analysis and reason substantiated by study and observation. Doctrines are beliefs which determine practices which may or may not, therefore, be supported by empirical evidence or logic. Wynne[1] describes three

1. John P. Wynne, *Theories of Education—An Introduction to the Foundations of Education*, New York: Harper and Row, 1963, Chapters 1, 2, and 12.

of these which have influenced curriculums. One of the oldest doctrines is that of the classical humanists which expounded the formal discipline value of subject matter, and which arose as a defense against the advances of realism. The doctrine supports the idea that the value of the curriculum lies in the process rather than in subject content. This was a very convenient doctrine for it provided an argument for support of traditional practices. (The philosophy of this doctrine is discussed further in Chapter 2).

Another curriculum doctrine is that of natural-perfection. This idea is based on the educational philosophy of Rousseau and represents for some the ultimate goal of education as the good life. This doctrine promotes the idea that education begins in the nature of the child and in his direct experiences and normal activities all three of which should be utilized in the learning process.

The third doctrine states that certain basic subjects have value for everyone. According to this doctrine all curriculums should contain these subjects. Those who hold to this theory believe that certain basic subjects are essential to growth and development, and that no one can be educated unless he masters them. Electives consist of extensions of these subjects.

These three doctrines represent the prevailing ideas influencing curriculums. The first stresses the process rather than the content; the second emphasizes the child, and the third, subject matter. These three also represent approaches to curriculum construction.

Curriculum Approaches

Related to the doctrines discussed above are three major approaches in curriculum planning which are: the pupil-and-his-culture; the subject-matter; and the problems approach. These approaches are not mutually exclusive for in curriculum planning one will merge into another regardless of which one is employed as the original base. These approaches have stimulated the growth of two points of view in all curriculum development. One places emphasis on the subjects to be taught, and the second is concerned not with any particular subject but with whether, and how, any course fulfills the personal, or societal needs.[2] In the latter approach, needs are determined from a study of youth and the society in which they live, and are met through selected, appropriate learning activities derived from content areas. Each curriculum approach is individually subdivided. An approach based on

2. George F. Kneller, editor, *Foundations of Education*, New York: John Wiley and Sons, 1963, p. 456.

pupil experiences is referred to as the experience curriculum. Those based on course content are older, and known as subject matter curriculums. More recent approaches stress such processes as exploring, analyzing, problem solving, and the structure of knowledge, and are related to the experience curriculum in their conception. A curriculum approach that combines pupil experiences and subject matter concern is called a humanistic approach and can be found in several variations. The combination obviates the limitations of either approach utilized exclusively.

In the following section a description and discussion of these major approaches or concepts are presented for the purpose of contrast and comparison.

CONCEPTS OF THE CURRICULUM

The Subject-Centered Approach

The oldest, and what is sometimes considered the traditional concept of the curriculum and approach to curriculum construction, is content-centered, and the basic learning activities for all students are selected from the major subject areas and organized into courses of study. In fact, it is difficult for curriculum people in this camp to think of the curriculum in images other than those of subjects: science, mathematics, languages, history, music and art. These subjects suggest a series of learning activities such as scientific principles, number combinations, grammar, dates, events in history, singing by syllables, playing musical instruments, and painting and drawing according to preconceived designs and traditional materials.

This concept also includes groups of subjects which, when arduously pursued, lead to graduation. These patterns or groups have been so traditionally established in some schools that they are identified by such names as the general, college-preparatory, and vocational curriculums.

There are a number of characteristics of the subject-centered curriculum which may be described to identify it.

1. It is shaped by what are known as minimum essentials. Minimum essentials are derived from the subjects themselves and consist of concepts, skills, rules, and principles which are basic to further study in each subject.

2. The emphasis is on pre-conceived content. Since the subjects are the sources of the content, courses of study can be constructed in advance for all pupils. A knowledge of the subjects, not the learners,

is essential. The content is incorporated in the courses of study prepared for use on a local or state-wide area, or selected from textbooks in the content area. Often the content is determined on the basis of available instructional materials such as workbooks, study manuals, motion pictures and filmstrips, and programmed materials.

3. The curriculum is based on adult rather than adolescent needs and interests. In subject-centered courses of study, a study of adolescent needs and interests is not considered essential. Values to the student are inherent in the content and depend upon mastery of the essentials and extensions of the subject. A knowledge of the pupils is irrelevant; knowledge of the subject is paramount. If the pupil is slow in mastering the content, he should be forced to repeat his task until the subject matter has been mastered. If it cannot be mastered through repetition, then the pupil should not be permitted to pass the course. The content should not be changed or a selection made on the basis of the learner, for this would be diluting the subject.

4. Emphasis is on conformity as a learning outcome. In the subject-centered curriculum, the outcomes are not only preconceived, they are identical for all pupils. This is consistent with the other characteristics, for the outcomes are derived from minimum subject matter essentials. If they were derived from a study of secondary school pupils, they would vary, as pupils vary.

5. Changes occur in the curriculum only as subject matter changes and are not likely to occur as a result of changes in society.

Examples of this characteristic may be noted from a study of textbooks. Some changes may have been made in the organization of the content and in applications, but the majority of the changes consist of attempts to incorporate new knowledge into old textbooks.

6. In subject-centered curriculums, the outcomes and content, rather than the psychological principles of learning, determine the methods of teaching. Since the outcomes are derived from the subject, and the aims and purpose are a mastery of the subject, methods of instruction are fixed or restricted to a few tested recipes. Student participation, initiative, and opinions are minimized; memory of factual materials is stressed. This results in teachers lecturing, quizzing, and testing, following uniform assignments of portions of subject-matter. The method consists largely of following a logical sequence.

7. The organization of courses of study and the content of each course follow a logical pattern. This results from the definition of a content area as a system of organizing the experiences of the race into logical categories. Psychological methods of organizing these experiences in order to facilitate their being learned do not always follow the same pattern.

The Pupil-and-His-Culture Approach

This was the first of several concepts in the progressive education movement. The reaction against the subject-centered curriculum was focalized in the Progressive Education Association. The progressivists advocated placing emphasis on the learner rather than on the subject matter and upon selecting content which met the needs and interests of youth.

During the period from about 1900 to 1955, the progressives had a great influence on the curriculum. They developed the interest- and experience-centered curriculums which were based on the gestalt or insight theory of learning rather than on the mechanistic theory of Thorndike.

The progressivists were as extreme in their posture as the subject matter advocates had been. As a result of several years of criticisms that pupils spent too much time in social activities, play, and free activities and too little on subject-matter, the organization finally was dissolved in 1955.[3] However, certain elements of the movement continue to this day and some of the concepts developed by the progressivists are very useful, and continue to influence instruction, curriculum procedures, and teacher education.

A second variation of the pupil-and-culture concept is the child-centered curriculum which starts with a study of the pupil and employs subject matter to achieve outcomes. In the subject-centered curriculum the mastery of subject content is the outcome. There is a trend toward this type of curriculum because of the explosion of knowledge. It is not possible to teach all knowledge and if it were, it would be out-dated almost immediately. The subject matter curriculum does not prepare one for the future except incidentally by virtue of transfer of training. On the other hand, curriculum developers must guard against such pitfalls as presented by the fact that teachers are not competent to analyze society and its trends; and even if they were they would not have time for such scholarly pursuits. Hence, the concept of curriculum must be broad enough to provide for personal as well as social needs within its framework.

The subject-centered and interest-centered curriculums have much in common. Learning experiences derived from subject areas are found in both, but they will not be identical. In the child-centered curriculum, student needs and interests shape the curriculum. In both approaches,

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3. J. Minor Gwynn, *Curriculum Principles and Social Trends*, third edition, New York: Macmillan, 1960, p. 45.

obviously, subject matter is utilized. It is selected because there is an indicated learner need on the one hand, or on the other hand the content is assumed to have intrinsic values.

The chief distinction between the two concepts resides in the basis of content selection. If learning experiences are selected from a study of youth, there is considerable possibility of their being meaningful, applicable, and congruent with their needs and interests, and desired outcomes are more likely to be achieved. It follows that content selection on this basis will provide for individual differences, for the content will have great variety and will contain materials to meet a wide range of interests. Selections are made from a knowledge of subject matter, with consideration for needs and interests of pupils, and the results of a survey of the society in which they live. Hence, relevance is a criterion of selection.

The pupil-centered curriculum however, does not ensure adequate provision for all pupils. It does provide, however, the framework in which it is possible to do so. Several precautions are needed which, if not observed, will result in a neglect of many basic skills needed for an understanding of academic subjects. Some of these are:

1. There may be an element of laissez-faireism in the interest curriculum, a tendency for teachers to let pupils do what they choose to do or are interested in doing at the time whether the activities are educationally profitable or not. This permissiveness is based on the assumption that what pupils are interested in doing is what they need and is best for them. Laissez-faire teachers do not believe in interfering with the natural motives and inclinations of pupils.

This tendency is likely to result in over-doing or over-learning some aspects of the curriculum at the expense of not acquiring other desirable outcomes. Pupil interests should be known and utilized, but not to the point of permitting pupils to choose all phases of the curriculum.

2. Minimum essentials may be poorly defined or neglected in the interest curriculum. A study of youth and its environment will reveal certain minimum essentials that each pupil should learn. Certain pupils may not be interested in them, but they do need them. Needs and interests, then, are often not the same, because while pupils are usually interested in their immediate known needs, many of their needs are not known to them. Yet the school is concerned with both the welfare of society and of the individual. An individual may not experience a need for learning certain principles of health and sanitation because he is healthy, but if he does not know and practice certain principles, he will probably endanger his own health as well

as the health of others. Thus, a certain amount of learning should be based on needs as well as interest.

Needs and interests change as society changes. If a curriculum is based on needs and interests, continuous surveys are required to determine them. A curriculum constructed on the basis of a survey may become inadequate in a relatively short time as changes in the community and nation are reflected in pupils.

In the child-centered curriculum the problem of placing major emphasis on diversity or conformity must be solved. Normally conformity is stressed in the subject-centered curriculum and diversity in the child-centered. There is a danger that either conformity or diversity will be overemphasized, and one approach might well seek to incorporate elements of both. Yet, diversity ministers to and nourishes the uniqueness in each individual. Diversity and variety are the basis of strength in democracy. For those interested in the revolutionary process, it can be said that diversity and variety are pre-conditions for the functioning of evolution and hence, change. They are also, therefore, important in curriculum innovation.

Pupil activities have a prominent place in the child-centered curriculum. It is quite difficult to meet all needs and interests without an enriched program of activities. The subject-matter content is often about the same in the child-centered as it is in the subject-centered curriculums. Therefore, a variety of activities is essential in the provision for individual variations not included in the academic subjects. They are stressed in a program of co-curricular activities (student government, clubs, assemblies) and incorporated in courses of study such as home economics, industrial and fine arts, music, and physical education and athletics.

The Problem Approach

A third method of curriculum development, the problem approach, was formulated to harmonize the position of the subject matter advocates with the needs-of-youth position. This method is characterized by the selection and organization of the content and methods employed in presenting learning activities. It is based on the concept of learning as problem solving. The subject matter is selected to meet the needs of the pupils and is based on various disciplines. These are related by the methods employed by the teacher to achieve a process called *coalescence*, a process of relating the essential content of a subject area with pupils' needs and experiences so it will be meaningful. The problem approach also treats learning experiences in a manner that encourages reflective thinking in finding the solutions to problems.

Secondary outcomes consist of learning factual material necessary to engage in reflective thinking.[4]

The steps in reflective thinking are those employed in research. Each problem begins with a felt need or difficulty which cannot be solved save through the securing of data, the organization of data, and the formulation of conclusions based on them.

The problem approach is based on the field theory of learning as contrasted with a mechanistic theory of the subject approach. Learning theories influence curriculum approaches and methods and will be considered in a subsequent chapter.

The problem approach requires an organization or learning experiences about problems rather than the logical organization which is characteristic of the subject matter curriculum. Problems are first selected on the basis of their interest to pupils and their utility for advanced learning, and in gathering data, subject lines may be transcended. The organization is determined by the entire class and conclusions are derived through group action.

This method employs some of the features of the subject- and interest-centered curriculums but introduces another dimension: the problems, needs, concerns, and learning difficulties of pupils and a different method of organizing learning experiences. Since method is the key to the success of the problem approach, and is difficult to master, the problem approach has not been as wide-spread as the subject curriculum. The majority of teachers have not been trained to teach by this method. Teaching in this way also requires an unusual number and variety of instructional materials. Each classroom becomes a laboratory. Reading materials, especially references, are needed in each classroom or must be readily available and accessible.

This method accomplishes three major purposes often not easily achieved in the other two: (1) motivation is secured through both the method and the content of the curriculum; (2) relation between the basic needs of youth and subject matter is achieved through coalescence; and (3) the organization of learning experiences promotes and demonstrates the relationship between content areas, for the study of problems may take a student into several fields of knowledge.

Interaction and the Problem Approach

Interaction is one variety of the problem approach. This method cannot be employed unless curriculum planning is both subject- and

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4. C. Burleigh Wellington and Jean Wellington, *Teaching for Critical Thinking*, New York: McGraw-Hill, 1960, pp. 76-80.

pupil-centered, for the problems must be selected cooperatively by pupils and teachers if they are to be within the pupils' experiences and are to be meaningful. Interaction in this sense includes the interaction between the learner and his environment.

A curriculum which embodies both subject matter and experience and involves problem solving requires a process known as *interaction* between all who are concerned in curriculum planning: teachers, pupils, parents, and the school's professional personnel but especially between teachers and pupils. The process is often called group dynamics. It consists in a group of persons who have a need or a problem meeting together to formulate goals, to plan activities, to achieve them, and to determine standards of achievement. Group dynamics is based on the idea that by sharing experiences and thinking, better solutions to problems can be generated than those developed by a single person. A final decision selected from many alternatives thoroughly discussed and refined by group participation is quite likely to be appropriate, valid, and enforceable.[5]

Curriculum planning by this process is continuous and everchanging. Unlike the subject-curriculum, it cannot be planned too far ahead because of the involvement of pupils' interests and experiences. However, subject matter is always involved but in different ways and it is selected on a different basis.

It is possible, through interaction, to develop curriculums which are superior to those which follow the methods dictated by the two widely separated concepts: subject curriculum and child-centered curriculum. But it is also possible to carry emphasis on the pupils' experience too far and by so doing neglect aspects of subject matter which are essential to a complete understanding of current problems and to further learning.

Continuous exploration of pupils' interests and needs and cooperation of pupils in planning does not preclude long-term planning by teachers. In fact, when day-to-day, instant pupil-teacher planning determines the curriculum, some learning experiences which have been labeled educational "trivia" by critics may be introduced. Some of these are: pet shows, personal grooming, how to use a knife and fork, how to ask a girl for a date, and the construction of barbecue pits. All of these have definite educational value, but advocates of the

5. For a further discussion of the importance of relating to others in education, see Dwayne Huebner, "New Modes of Man's Relationship to Man," Chapter 7 in *New Insights and the Curriculum*, 1963 Yearbook, Association for Supervision and Curriculum Development, Washington, D.C.: NEA: 1963.

subject-curriculum are critical of them,[6] and suggest they may be learned outside of school.

THE STRUCTURE-OF-KNOWLEDGE APPROACHES

The structure-of-knowledge approaches are a recent development and a fourth major attempt at curriculum design and construction. A vocabulary has appeared since the latter part of the 1950's to describe new approaches to curriculum construction. Some of the terms used are *process, structure, mode of inquiry, strategy of the discipline,* and *conceptual design.* All of these terms are related, although each suggests a slightly different concept. Many factors account for the shift in emphasis. We have noted that the content-centered curriculum in the early part of the 20th century did not give sufficient consideration to the learner. During the 1920's and 30's, emphasis was completely shifted away from content to the selection of learning activities based on the immediate needs and interests of youth. Going from a curriculum which was influenced by formal mental training to one based on felt needs was really going from one extreme to the other without finding an appropriate balance between the curriculum and the learner.

The problem approach helped achieve a balance by selecting problems that appealed to pupil interest but employed subject matter in investigating them. However, this approach can revert to the interest curriculum if pupils are permitted to dominate content. The major cause for the shift to a conceptual emphasis was the knowledge explosion. The amount of information and knowledge has increased from the birth of Christ at an exponential rate. The implication of the knowledge explosion for curriculum making is that some new approach must be found for the task of selecting content. Rather than try to teach a large number of facts which will probably be quickly forgotten or soon be out-dated, the process-centered curriculum has been suggested.[7]

The Process Approach

This method, a combination of the pupil-culture, subject matter, and problem method, is also referred to as the discovery or inquiry method. In each subject scholars have developed a manner of inquiry,

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6. See Harold B. Alberty and Elsie J. Alberty, *Reorganization of the High School Curriculum,* third edition, New York: Macmillan, 1962, pp. 167-168.
7. Roland B. Kimball, ***Focus on All Children,*** Chicago Curriculum Advisory Service, November 1964, pages 1 and 2.

and have organized knowledge into a logically conceived and useful structure similar to a taxonomy. If this mode of investigation and structure are learned, then the student has the tools with which he can advance his own knowledge. Each skill acquired will be instrumental in helping him increase his knowledge and discover new factual information in his own way rather than by having to memorize large bodies of factual material. Processes are more permanent than factual information because they utilize it, classify and relate it, and give it meaning. Process, then, is of a much higher order than facts, and hence retained more easily.

This approach reinstates emphasis on content, for it is needed as a vehicle to teach processes. It also retains concern for the pupil. Motivation is secured by selecting processes in relation to the maturation level of the pupil which are of the greatest immediate interest and need. It also combines the content and pupil-interest approaches with the problem-centered approach because one of the major processes is that of acquiring skill in the solution of problems.

The process approach also helps maintain a balance between the cognitive, psychomotor, and the affective types of objectives. The greatest emphasis is placed upon the development of mental skills. However, the pupil's emotional attitudes toward learning are considered and when found inadequate, attempts are made to modify them in appropriate directions. They are developed as concomitant outcomes. This approach also permits the organization of content into instructional units which may be built about a single topic, within a single subject matter area, or it may transcend subject divisions.

Some of the processes which are applicable to any subject are: communicating, discovering relationships, applying facts and principles, and problem solving; analyzing, gathering and organizing data, estimating, drawing conclusions, and verifying.

The Structure Approach

Every discipline has a basic structure, a way in which its content is interrelated and organized. If this structure is known, pupils will advance rapidly in the study of the subject and will have an understanding of it. Interrelationships of concepts and major ideas are expressed as principles and generalizations which were derived from empirical studies of the field. Thus, the structure of a subject is learned when a student is able to see these relationships and express them in his own vocabulary in terms of principles. Learning is advanced by applying the principles which will open up new avenues, new insights, and lead to further information.

Each student learns a mode of inquiry which is essential to the understanding and utilization of the structure approach. Factual information is first secured through various sensory methods; then relationships, concepts, principles, and generalizations are developed through analysis and synthesis. With a knowledge of the method of inquiry, and by expressing the processes and principles in symbols, a student can advance in the study of the subject as well as advance his own knowledge by applying the mode and processes.[8]

For example, a student learns through demonstration or observation in his own experience that when one object strikes another, the angle of rebound follows a consistent path. From this observation he makes a generalization. Expressed in mathematical terms, the angle of incidence equals the angle of reflection. The student may see this intuitively and make use of the principle, although he may not be able to express it in scientific language or to arrive at a logical proof that it is true; but he will be able to demonstrate it by reflecting light from a mirror or causing a tennis ball to rebound from a backboard.

The process approach does not answer such questions as "Should one study this subject in the first place?" It is assumed that all students in secondary schools will study science, English, social studies, and mathematics. Criteria which will be presented in subsequent chapters are needed to determine which subjects each pupil should pursue beyond these basic academic ones. The process and the structure-of-knowledge approaches do aid in answering the question "What aspects of subjects should be taught?" and "How and when should they be presented?" The assumption that all students should study these four basic subjects is sound, for they meet the criteria for determining what should be a part of the curriculum for each individual. Observation of curriculum patterns shows that these four are vital parts of every curriculum whether the school is large or small, traditional or progressive.

The Humanistic Approach

This approach is a modification of the structures concept. The structure-of-knowledge approach can make provision for transfer of knowledge by helping pupils apply knowledge and principles. The greater the variety of applications, the greater the transfer. Application to areas of pupil interest aids motivation, but this comes after the basic structure is learned, not before.

8. Jerome S. Bruner, *The Process of Education*, New York: Vintage Books, Random House, 1960, pp. 1-32. See also Ford and Pugno, and Elam in bibliography at the end of this chapter on the structure of knowledge.

Bruner, who advocates this approach, places emphasis on motivation secured through the subject and successes in learning over a long period of time as opposed to temporary motivation secured through immediate interests and instructional media. The process of learning does motivate further learning. However, some initial motivation is often necessary.[9]

There are far more principles, relationships, and knowledge in any subject than can be included in any secondary school course of study; thus, a selection must be made. If the selection is based on essential aspects of structure and the interests and concerns of pupils, then subject content will not be neglected, and initial as well as subsequent (intrinsic) motivation will be secured. This results in a humanistic approach which combines the structure of academic subjects and the needs, abilities, concerns, and interests of pupils. These factors can be employed in the selection of content, in motivation, and in helping pupils make wise choices in electives. After a student has embarked upon a course of study, the structure of the discipline, as well as the student's own interests and needs, will determine the content.[10]

CRITIQUE OF APPROACHES

None of the approaches considered singly can provide an adequate curriculum, nor can any one of them provide all the answers for designing a curriculum.

1. *Subject-centered.* The subject-centered approach is based on formal discipline and a mechanistic theory of learning. It forces the logically organized experiences of the race on the present experiences of pupils.

The content is selected wholly from a study of the discipline with little regard for the concerns of youth. The method and content compel youth to memorize facts which may not function in their lives. Individual differences are neglected by emphasizing conformity of outcomes. Initiative and creativity are not encouraged, and there is little motivation derived from the study of the subjects.

The major emphasis of the curriculum is on factual material rather than on mental skills, processes, and the development of interests, attitudes, and appreciations. Primary emphasis in learning is on the

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9. Jerome Bruner, *op. cit.*, Chapter 5.
10. John I. Goodlad, "Direction and Redirection for Curriculum Change," *ASCD News Exchange*, Vol. 8, No. 3, April 1966, p. 2.

memorization of facts rather than the development of understandings, generalizations, and principles and applications of them.

In planning and constructing subject-centered curricula, teachers do not have to study the social, political, and economic structure of society as a basis for curriculum construction. All that is necessary is a knowledge of various subjects and the ability to abstract from these the fundamentals believed to be essential.

Since the outcomes are uniform, the objectives known in advance, and since they consist of the acquisition of subject matter, evaluation is in terms of content. The most difficult outcomes to measure, such as attitudes and appreciations, are often not stressed. Achievement in subject matter is the basis of evaluation. Emphasis on this neglects pupil growth, change, concomitant outcomes, applications of material, and the changes learning causes in behavior.

The subject-centered curriculum has been retained to a great extent because it has the approval of parents, of subject-matter specialists and of colleges. It is easily defended, easy to administer, and providing facilities for instruction is less expensive.[11]

2. *Interest curriculum.* The interest curriculum places emphasis on the learner often to the neglect of content. It is based on field theories of learning and resulted in the development of instructional units which transcend subject lines.

However, there are concepts, principles, and generalizations which are so vital in the lives of youth that all should learn them. These are needed in daily living in the present as well as the future, and needed as a basis for continued study in each subject. If interests of youth are followed without regard for the development of processes and a knowledge of the structure of knowledge, an imbalance will result.

3. *Structure-of-Knowledge.* The structure-of-knowledge approach answers questions pertaining to course of study construction rather than what courses should be offered in a high school and which ones should be in the curriculum of an individual pupil. Assuming that all pupils will pursue courses in language, social studies, mathematics and science, this approach is superior to others in selecting the content.

A superficial study of the structure-of-knowledge approach might lead to the conclusion that it is practically the same as the subject approach. A comparison of the two reveals the difference.

The subject approach emphasizes facts as ends in themselves and stresses memorization; the structural approach emphasizes understanding, the development of perceptual skills and symbolic operations

11. See Alberty and Alberty, *op. cit.*, pp. 171 ff.

which lead to an extension of learning and knowledge.[12] Basic skills are essential, for they permit one to utilize processes in the discovery of knowledge and relationships. The subject-centered curriculum keeps pupils memorizing facts rather than learning the skills which give pupils the ability to study and to progress independently. Adolescents are capable of considering propositions, of acquiring concepts, of seeing relationships, and capable of perceiving that alternative possibilities can be handled in combinations. This ability is not the result of psychological maturity, or a consequence of adolescence *per se*, but is developed through experiences acquired through interaction with the environment and through instruction. This is also the developmental basis of readiness.

Interests and concerns are also needed to help determine what particular courses a school should offer and which ones a pupil is guided to pursue. Thus the humanistic approach is needed.

4. *Humanistic approach.* The humanistic approach is the most promising of all. It provides for motivation by considering the needs and interests of youth and retains emphasis on subject matter.

In this approach, applications are made of each process, principle, and generalization. This helps assure transfer of training, and aids pupils to advance their own learning.

It provides for readiness, for the structure of each subject can be taught at any secondary-school age providing it is presented in the vocabulary of the pupils and is consistent with their experiences. The development of readiness can be stimulated by providing further experiences, either actual or vicarious.

One of the chief values of this approach is that it provides answers to questions pertaining to the selection of learning experiences which cannot be determined wholly through a study of the structure of knowledge and the mode of inquiry. It is an eclectic method employing the best elements of the several approaches.

The central theme is to develop an understanding of subject content as opposed to meaningless repetition which characterized the subject matter approach of a few decades ago. It retains a consideration of the concerns and interests of pupils needed in planning curriculums and courses of study, and builds in motivation.

The individual is the focus of the guidance program. And an instructional program so planned has some built-in motivational aspects.

There are high schools in which one can find curriculums con-

12. Jerome S. Bruner, "Education as Social Invention," *Saturday Review*, February 19, 1966, pp. 70-72 ff.

structed on one or another of the approaches described above. The comprehensive high school is the prevailing type of school and in some of these there are multiple curriculums, each constructed on a different approach. For example, the academic curriculum may be based on the subject matter concept and the vocational curriculum developed according to pupil needs and interests.

A description of curriculum areas and typical curriculums follows.

CURRICULUM AREAS

The curriculums of comprehensive high schools are usually planned in three areas: required courses, elective courses, and extra activities or cocurricular activities. There are some schools in which the program consists essentially of a single curriculum, but in a majority of instances there are also elective courses.

Required Courses

The learning experiences considered vital in the lives of youth are required of all students. Secondary schools without exception require students to take certain courses. These requirements are arranged into courses of study such as English I, general science, American history, general mathematics, physical education, and often music and art. The courses required of pupils in various high schools follow a unified curricular pattern although there is a variation in title, in content, and in the number of required units.

The one feature common to all required courses is that the learning experiences so provided are based on common needs and interests. The content, then, is general in nature rather than specialized, with a concentration in specific areas of learning. Variations in content are due to differences in student bodies, and the unique characteristics of varying environments.

Disciples of the subject-centered curriculum believe in prescribing the major portion of the curriculum. Some extremists advocate a four-year program consisting of four units each of English, social studies, science, mathematics, and a foreign language. The only variations permitted would be in the kind of mathematics, and the particular foreign language.

In a humanistic approach, there are fewer required courses and, obviously, a greater number of electives. Various types, kinds, or levels of each course are provided to meet the needs, interests, and abilities of each student. The educational experiences of pupils must contain a

vocabulary which explicates abstractions and makes possible discussions of relationships. For example, several sections of science are offered, ranging in difficulty from nonmathematical general science to courses as difficult as some often found in college.

These views of the number and functions of required courses represent both extremes. Those who believe that the major portion of the curriculum should be prescribed hold to rather inflexible purposes of secondary education. If some students cannot achieve these purposes through the prescribed curriculum they should repeat required courses until these have been mastered. If mastery is not achieved through repetition then the student is not qualified to proceed to the next course nor to graduate. This is a tacit assumption that the secondary school is not intended for all youth, but only for those who can profit from a prescribed curriculum. Some extremists are critical of curriculums in which there are several variations of specific courses, claiming that such courses are diluted or "watered down" to the extent that all students can pass them. Such courses, it is contended, lose their value for developing skills and mastery of content.

On the other hand, if there is no prescribed portion of the curriculum, there is a high possibility that many students would pursue courses only in their areas of interest and neglect studies essential to health, citizenship, and vocational efficiency. There is also danger that pupils would develop habits or tendencies to avoid the study of any subject or course that required a considerable amount of study and effort.

Proponents of the experience- and child-centered curriculums believe that a good guidance program is superior to a prescribed curriculum. Through counseling, students are assisted in selecting courses which are of greatest value to them, and they are more likely to pursue balanced programs congruent with their needs. Thus there would be no need to require certain courses of all students. However, the curriculum should be comprehensive so that guidance and counseling could function properly.

Even a guidance department that functions well operates under some limitations. There will always be students who, in the guise of self-direction, elect courses which are easy for them, and avoid others. Counselors cannot require them to do otherwise. This results in some graduates who have not had any science or mathematics in senior high school; some who have never studied American history, or had a course in government. Many of these students have an excessive number of credits in industrial arts, home economics, and fine arts, crafts, music, dramatics, speech, journalism, and physical education. To prevent such unbalanced programs, the prevailing practices and trends are to require all pupils to pursue courses in five areas: English,

science, mathematics, social studies, physical education. The junior high school requires courses in these same five areas plus some work in music and art.

Elective Courses

Elective courses are extensions of the required courses. They are usually, but not always, more specific and limited in nature as compared to required courses which are more general. The electives were developed as an important provision for differences among students. They give students an opportunity to pursue special interests acquired in their general courses and to meet specific requirements for further study in college. For those who do not plan to attend college, electives provide an opportunity to receive prevocational training or some occupational skills and knowledge preparing them for employment or advancement in a vocation.

The majority of high schools have only a general curriculum which includes both required and elective courses. About a fifth of all schools have multiple curriculums which are named academic, college preparatory, and vocational. However, it is difficult to classify high schools with respect to curricular patterns, for there are many variations of the single and multiple types of curricula. Some schools may state that they have a single track, but in practice they counsel students to pursue modified curricular patterns. Other schools create an academic climate of such a nature that it becomes a status symbol to pursue academic, scientific, linguistic, or mathematical courses.

Cocurricular Activities

Cocurricular, or extracurricular, activities are now considered a necessary and vital part of the school's curriculum. Originally, they were activities outside the school day and were often condemned, or at best tolerated, but seldom promoted. They now are a part of the school's program, and the activities are planned, sponsored by the faculty, and scheduled by the school officials. This change occurred because their educational values were recognized.

Some purposes and values of cocurricular activities are described here:

The activities provide opportunities for students to apply learnings acquired in required and elective courses. Thus they give purpose and meaning to curricular content. For example, students learn to write and compose in English classes; the school paper gives them a chance to apply these abilities in a lifelike situation. The same applications

are possible in dramatic, scientific, musical, and other activities. Often, in regular classes, opportunities cannot be provided for carrying instruction into the area of application, but such opportunities provide deeper understandings of and motivation for course work. The activities field provides many experiences in the transfer of training, and, by demonstrating the utility of school work, reinforces learning.

MAJOR PROBLEMS

From the above presentation of approaches to curriculum designing, it is now possible to identify a number of significant problems.

1. When a number of persons with different philosophical orientations work on curriculum design and development the result is fragmentation. This is contrary to principles of growth and development of youth. Youth grow in all their capacities concurrently. Furthermore, as long as cocurricular activities are treated apart from the curriculum, they will always be considered something extra and somewhat unnecessary rather than a significant part of the whole. The education of youth should follow a unified pattern of curricular offerings and cocurricular activities. All educational activities should fit into this pattern. Building a curriculum in parts is comparable to the employment of three architects each of whom is commissioned to draw plans for one of three parts of the same building, but working independently of the others. This tendency toward fragmentation is partially controlled by curriculum directors, school principals, and others who attempt to coordinate the various elements. However, results have been disappointing and inadequate. Pupils are often caught in the conflict of vested interests, being counseled by persons who wish to promote their areas, and thereby enhance their positions. In practically all large high schools, teachers may be found who have different concepts of the curriculum and who wish to stress one aspect to the exclusion of others. This tendency will not be corrected until the curriculum is viewed in its entirety rather than in its parts.

2. The secondary-school population is increasing in both the number attending and also in the percentage of youth of secondary school ages attending. This means that a greater variety of needs and abilities must be met. Present curriculums are inadequate in many schools to meet these needs.

3. Knowledge is increasing rapidly. It is claimed that greater advances have been made in some areas in the last two decades than in the previous hundred years. This trend will continue as new instruments are invented and new fields (outer space, for example) are

explored. This is especially true in science, medicine, and mathematics, but the social fields are advancing also. In fact, the developments in each area affect the others to such an extent that none can remain static.

4. Methods and content cannot be separated. A number of learning experiences and topics considered essential in the curriculum have been omitted because appropriate methods of instruction have not been devised. But great strides have been made in recent years in methods which have resulted in a reconsideration of some topics heretofore ignored and the introduction of new ones. Examples of these are: driver education, sex education, religious education, and the teaching of attitudes and values.

Methods have also contributed to expanding the curriculum vertically as well as horizontally. Newer teaching devices have increased learning efficiency so that more can be learned in the same time. This has resulted in extending the content of many courses far beyond what was considered feasible a few years ago and has increased the number of units required for graduation. The introduction of laboratory equipment in teaching reading and foreign languages is an example of this trend as are programmed materials in some subjects. It is not uncommon for a high school graduate to enter college ready to study advanced calculus; to start the study of a foreign language at a high level; and to enroll in courses formerly open only to sophomores or juniors.

Even though methods have been improved, their development is still in its infancy. Programmed materials and teaching machines are still in the experimental stages. Rapid reading instruction is just beginning to make progress, and language laboratories have found their way in only a few schools. Traditional methods of teaching for various outcomes are being modified in keeping with newer concepts of how pupils learn and develop. Also, greater attention is being given to how to teach for various outcomes which have been neglected and misunderstood, as for example, those which have an emotional basis.

5. Overcoming the conservative nature of the general public and of some educators has always been a problem in curriculum planning. Changes in the curriculum cannot proceed more rapidly than public approval will support. In some communities the teaching of sex education, religion, socialized medicine, race relations, and even the introduction of the newer mathematics have become issues over which there is much debate.

6. In some school systems there is a lack of professional leadership, which has retarded or even prevented curriculum reorganization. Some school administrators and supervisors are afraid of change, and

find it more comfortable to join a conservative public than to provide leadership for progressive teachers.

Summary

Curriculum revision is a continuous process whether it is the result of conscious effort and study or is incidental. Revisions follow patterns which are determined by various concepts of the curriculum. There are numerous concepts and competing theories concerning the nature and functions of the curriculum. However, the prevailing patterns were described as the subject-centered, child-centered and problem-solving, structure-of-knowledge, and combinations of these. These do not constitute distinct categories of thinking, for there is considerable overlapping and merging of one into the other.

Curriculums are not culture-free and expectations vary within communities. Therefore it is not surprising to find a lack of agreement among curriculum planners. Curriculums may also be based on doctrines and beliefs rather than on theories which have been derived through critical, logical, thinking. One of the oldest of these is the doctrine of formal discipline. This doctrine emerges frequently under new names. The fundamentalists, traditionalists, and subject centered advccates adhere to some extent to the theory of formal mind training.

Regardless of which approach is employed in constructing or revising secondary school curriculums, there is considerable uniformity of subjects which all pupils pursue in the prescribed portion of the curriculum. All students pursue courses in English, social studies, science, mathematics, and physical education, and some form of music and art. In many schools there are different types of these courses designed to meet the needs of pupils with varying interests and abilities. The greatest variations are found in the electives which are strongly academic for college-bound youth with high abilities; in courses of a general nature for those who may or may not go to college; and in vocational courses for those who will prqbably enter industry following graduation.

Although there are special types of high schools designed for pupils who have similar abilities and interests or vocational choices, nevertheless, the majority of secondary schools are comprehensive in nature and have developed courses of study designed to meet the needs and interests of all youth who attend.

Many problems confront the secondary school educators who attempt to keep the curriculum vital. These problems emerge because of the rapid changes in society which are reflected in all areas of the

curriculum and therefore demand revisions. The total population is increasing as well as the school population which results in a greater variety of pupils whose needs must be met. If this task is to be accomplished, ways must be found to overcome resistance to changes. Many of the problems have developed into issues such as the introduction in the curriculum of certain topics which are pregnant with emotional overtones.

In subsequent chapters, guides for selecting, organizing, and presenting learning activities are presented.

Problems

1. Why are instructional methods included in concepts and definitions of the curriculum?
2. Describe a culture-free curriculum. Would such a curriculum be adequate for modern secondary school youth?
3. Are curriculum theories as valuable to educators as scientific theories are to scientists? Describe a curriculum theory.
4. How would you construct a curriculum which did not include some aspects of the subject-matter approach?
5. What are the differences and similarities between the subject matter approach and structure-of-knowledge approach?
6. Why is the acquisition of processes of greater value than the accumulation of factual knowledge?

Investigations

1. Analyze a high school curriculum to determine which approach was employed in its construction.
2. Talk to several high school teachers to determine their curriculum orientation with respect to theory, approaches, and purposes of the curriculum. How well do they distinguish among these terms?
3. Collect some outlines for courses you are to prepared to teach. Compare these outlines with the table of contents of the textbooks in use in your school. What are your conclusions?

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